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" ..... per litora spargite muscum,
Naiades, et circùm vitreos considite fontes :
Pollice virgineo teneros hìc carpite flores :
Floribus et pictum, divæ, replete canistrum.
At vos, o Nymphæ Craterides, ite sub undas ;
Ite, recurvato variata corallia trunco
Vellite muscosis e rupibus, et mihi conchas
Ferte, Deæ pelagi, et pingui conchylia succo."
Parthenii Ecl. 1.

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I.—*Note on a new Genus of Nudibranchiate Mollusca.* By Geo. J. Allman, M.B. &c., Professor of Botany in the University of Dublin.

In the autumn of 1842 I obtained in a salt-marsh about three miles to the west of Skibbereen, county Cork, a small Eolidiform Nudibranch, which on examination appeared to possess characters entitling it to the construction of a new genus for its reception.

It existed in great numbers in the salt-marsh, which was never, except at the very highest spring tides, flooded by the sea. The day was bright and warm when I met with this curious little animal. Many had crept quite out of the water and were crawling over the moist fronds of *Enteromorpha intestinalis*, and seemed to delight in exposing their slimy bodies to the influence of the warm autumnal sun. Others swarmed on the mud in the little shallow pools of the marsh, where their ova were abundantly deposited in the usual gelatinous masses characteristic of the eggs of the Nudibranchiate Gasteropods, a fact which is of itself sufficient to prove that this strange semi-marine and even semi-aqueous habitat was quite natural to our little Nudibranch. Their bodies were enveloped in an exceedingly abundant mucous secretion, which was poured out more copiously than I recollect to have witnessed in almost any other Gasteropod, and which is perhaps

in some way connected with their singular, almost amphibious habits.

I collected several specimens which I placed in spirits, but I unfortunately neglected to examine with any accuracy the animal in its recent condition, and it was not till several months afterwards, when I was making a complete survey of my collection, that the salt-marsh Nudibranch received the attention to which it was entitled. On sending specimens to Messrs. Alder and Hancock, as the first authorities on the subject, their examination coincided with my own in proving our little mollusk to be a creature of great interest.

The specimens having been preserved in spirits (a circumstance which in the case of the invertebrate animals demands from the naturalist the greatest caution in his attempts to establish zoological characters), our examinations were by no means so satisfactory as we could have wished; not however being restricted in our investigation to a single specimen, we were enabled in some degree to counteract the difficulties which the state of the specimens threw in the way of our inquiries, and succeeded in establishing characters by which the Nudibranch of the salt-marsh appeared to be generically distinguished from all hitherto described.

Perhaps the most anomalous character is the absence of tentacula. Indeed so strange is this fact, that for a long time I thought it was only apparent, and the result of a badly-preserved state of the specimens. A most careful examination however of several individuals having failed to detect any trace of these organs, I have no hesitation in concluding that their absence is real, and this will therefore constitute an important generic character.

Another highly interesting character is the dorsal and median termination of the rectum, which opens near the posterior extremity of the body on the mesial line of the back by a small tubular orifice, a most unusual though not unprecedented condition in the *Eolididæ*.

Our mollusk has been dissected by Messrs. Hancock and Embleton, but neither these gentlemen nor myself could detect any trace of corneous jaws. They have succeeded however in demonstrating a linear, jointed tongue covered with spines, or what they are rather inclined to consider as flat plates. A system of gastric ramifications seems also to exist, but from the state of our specimens we could make out nothing satisfactory as to its distribution.

From the facts now mentioned I had little difficulty in convincing myself that the mollusk at present under consideration possessed characters which excluded it from all hitherto esta-

blished genera, and I accordingly noticed it at the York Meeting of the British Association in Sept. 1844, under the name of *Alderia amphibia*, an appellation under which it has been also recorded by Mr. Thompson in his Report on the Invertebrate Fauna of Ireland, and by Messrs. Alder and Hancock in their Report on the British Nudibranchiate Mollusca.

Shortly after my noticing the little animal in question as a new genus of Mollusca, I received a letter from Mr. Alder, accompanying an extract from a paper by Dr. Lovèn of Stockholm, which had just appeared in a foreign periodical, and which contains an account of a Nudibranchiate mollusk referred by Lovèn to the genus *Stiliger*, Ehrenberg, and described by the Swedish naturalist under the name of *S. modestus*.

On comparing Lovèn's description of *S. modestus* with the subject of the present communication, it was evident that Lovèn's animal and the Nudibranch of the Irish salt-marsh were the same. A reference however to the characters of Ehrenberg's genus *Stiliger*, rendered it by no means so apparent that Lovèn was correct in the generic location of his mollusk.

Under this difficulty Mr. Alder received a letter from Dr. Lovèn, in which is the following passage respecting *S. modestus*:—

"A very rare animal. It is now ten years since I found my two specimens, one of which was lost by accident. Fortunately I described and figured it alive, for I never met with any more. *Stiliger*, Ehren., has only one species, and as it requires but little to widen its characters enough to let in my new species, I thought it advisable to do so, and still think I was right in so doing. At least I have not a superfluous genus on my conscience. Nothing is more easy than to make new genera, but the question is to find out the true generic characters, which, particularly in the Nudibranchia, is rather difficult."

On the above passage, Mr. Alder in a letter to me remarks: "So far Dr. Lovèn; and after his opinion, you will perhaps scarcely venture to institute your new genus, though Mr. Hancock and I, after mature consideration, think you would be right in doing so." With the English naturalists I agree, and my original opinion with respect to the necessity of a new genus for the reception of the salt-marsh Nudibranch remains unaltered. The characters indeed of this mollusk can scarcely be confounded with those of *Stiliger*, and in order that this matter may be made more apparent, I here subjoin Ehrenberg's characters of the last-mentioned genus from the 'Symbolæ Physicæ.'

"Stiliger, nov. gen.

"*Gen. Char.* Habitus *Eolidiæ*. Corpus oblongum, pallio discreto nullo. Latera corporis branchiarum stiliformium seriebus

longitudinalibus instructa. Tentacula duo tantum ante duos ocellos in vertice sita. Anus (et apertura sexualis ?) in medio dorso."

Ehrenberg's genus includes but a single species, namely *S. ornatus*.

It will here be seen that *Stiliger* is at once distinguished from the new genus by the presence of tentacula. In Lovèn's description of *S. modestus* he gives as a character, "tentacula lateralia, minuta tuberculiformia extrorsum vergentia." The organs however here called tentacula are certainly incorrectly so named; they are merely lateral prolongations of the head. *S. ornatus* on the contrary has two long genuine tentacula situated on the vertex, "tentacula duo longa ante oculos in vertice posita."

In Ehrenberg's figure the anus is represented as occupying a position considerably anterior to that assumed by this orifice in *Alderia*. In the latter it is placed near the posterior extremity of the body as in *Doris*, while in *S. ornatus* it is placed over that part of the animal usually occupied by the heart. This however, as Mr. Alder in a letter which I have from him observes, would not perhaps of itself afford a character sufficient for generic separation. Altogether Ehrenberg's figure is that of a very different-looking animal from Lovèn's *Stiliger modestus*, so that upon mature deliberation, and with the full concurrence of Messrs. Alder and Hancock, I have determined upon the retention of the genus which I originally established for the reception of the Nudibranch of the Irish salt-marsh.

It must always be borne in mind that the account now given is the result of an examination of spirit specimens, and therefore necessarily imperfect; the characters assumed as generic, however, I believe to be indubitably established, and we must only look forward to the detection of recent specimens throwing additional light upon the structure of this most interesting little animal.

The genus which it is necessary to construct for the reception of the new Nudibranch, I have great pleasure in dedicating to Joshua Alder, Esq., whose researches among this curious tribe of Mollusca constitute one of the many striking features by which modern zoological research is characterized; and from whose labours, in conjunction with those of Mr. Hancock, natural science is now receiving so valuable a contribution in the beautiful work of these gentlemen on the British Nudibranchiate Mollusca.

The following are the characters of the genus :—

Nov. gen. Alderia.

Gen. Char. Corpus oblongum. *Capitis* latera utrinque in lobum producta; ore maxillarum experti linguam armatam in-

cludenti. *Tentacula* nulla. *Branchiæ* styliformes dorsi lateribus utrinque affixæ. *Anus* subposticus in medio dorso. *Apertura sexualis* pone caput in latere dextro.

Species unica *A. modesta**, Lovèn.

Hab. in limo, locis maritimis parum profundis.

II.—*Contributions to the Physiology of Fecundation in Plants.*

By G. Dickie, M.D., Lecturer on Botany in the University and King's College of Aberdeen †.

[With a Plate.]

Although many interesting observations respecting fecundation in plants were contributed by the older botanists, it is chiefly to observers of the present century that we owe the facts now known respecting the structure of the ovule, its development previous to, and further progress after impregnation. The contributions of Brown, Amici, Brongniart, Mirbel and others to this department are invaluable, and when Schleiden in 1837 announced the "grand doctrine" as it has been called, that the extremity of the pollen-tube reaches the embryo-sac, indents it, carries it before it, and is itself then actually converted into the embryo, physiologists who formerly had written on this subject were stimulated to repeat their inquiries, new observers also entered the field, and the rash generalization of the observer alluded to has actually been the means of furnishing important additions to our knowledge of this most interesting branch of vegetable physiology. It can scarcely be doubted that much still remains to be known respecting this subject, and judging from the history of its progress, an accurate and complete acquaintance with it can only be arrived at by degrees and by the efforts of different observers. The quaint remarks of Nehemiah Grew, in his 'Anatomy of Plants,' appear to be so applicable to this matter, that no apology need be made for quoting them; he says, "That nothing hereof remaineth further to be known is a thought not well calculated. For if we consider how long and gradual a journey the knowledge of nature is, and how short a time we have to proceed therein; as on the one hand we shall conclude it our ease and profit to see how far others have gone before us, so shall we beware on the other, that we conceive not unduly of nature, whilst

* Though Lovèn's specific name, *modestus*, was evidently given to constrast with *ornatus*, the name of Ehrenberg's species, I have nevertheless abtained from changing it, though the congeneric relationship with *Stiliger* has been broken, and the name been consequently deprived of its original significance.

† Read before the Botanical Society of Edinburgh, Nov. 13, 1845.